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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,637	10/29/2003	Anant Achyut Setlur	GLOZ 2 00188 RD31976/3244	5540
27885	7590	12/06/2005	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			KOSLOW, CAROL M	
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/696,637	Applicant(s) SETLUR ET AL.	
	Examiner C. Melissa Koslow	Art Unit 1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-54, 56-59 and 63-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14 and 36-38 is/are rejected.
- 7) ☒ Claim(s) 15-35, 39-54, 56-59 and 63-73 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This action is in response to applicants' amendment of 18 October 2005. The objection to the drawings is withdrawn due to the replacement figures of 18 October 2005. Applicants' statement that at least one of the elements in the parenthesis is present in the formulas has overcome the objection to the specification and the 35 USC 112 rejections with respect to this issue. Objection to the specification with respect to claims 48 and 68 based on applicants' statements that TAG:Ce has the formula $(\text{Tb}, \text{Y})_3\text{Al}_{4.9}\text{O}_{12.8}$. The amendments to the claims have overcome the objections to the claims, the objection to the specification with respect to claims 12, 55 and 61 and the remaining 35 USC 112 rejections. The amendments to the claims have overcome the art rejections based on U.S. patents 4,550,256; 5,998,925; 6,504,179 and 6,504,179; WO 01/93342 and the article by Pinalli et al; the 35 USC 102(b) rejection over WO 01/8452 and the 35 USC 102(e) rejections over U.S. 6,669,866 and 6,596,195; U.S. patent application publication 2004/0159846 and U.S. application 10/368,115.

The information disclosure statement filed 20 October 2005 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

There was no list of the references, such as a form PTO-1449, in the Examiner's copy of the application. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing elements will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

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The disclosure is objected to because of the following informalities: It appears that in the formula $(\text{RE}_{1-x}\text{Sc}_x\text{Ce}_y)_2\text{A}_{3-p}\text{B}_p\text{Si}_{z-q}\text{Ge}_q\text{O}_{12+\delta}$, “ RE_{1-x} ” should be “ RE_{1-x-y} ” in light of the formulas on pages 5, 12, 15 and 19 and claims 23 and 46 which teach “ $(\text{Lu}_{0.97}\text{Ce}_{0.03})$ ”, “ $(\text{Lu}_{0.955}\text{Ce}_{0.045})$ ” and “ (LuCe) ”. It that that in the formula $(\text{Ca}_{1-x-y-z}\text{Sr}_x\text{Ba}_y\text{Ce}_z)_3(\text{Sc}_{1-a-b}\text{Lu}_a\text{D}_c)_2\text{Si}_{n-w}\text{Ge}_w\text{O}_{12+\delta}$, “ Sc_{1-a-b} ” should be “ Sc_{1-a-c} ” since b is not defined and it is known in the art that D substitutes for Sc. Appropriate correction is required.

Claims 15, 24, 39, 48, 49, 63, 64, 68 are objected to because of the following informalities: It appears that in the formula $(\text{RE}_{1-x}\text{Sc}_x\text{Ce}_y)_2\text{A}_{3-p}\text{B}_p\text{Si}_{z-q}\text{Ge}_q\text{O}_{12+\delta}$, “ RE_{1-x} ” should be “ RE_{1-x-y} ” in light of the formulas on pages 5, 12, 15 and 19 and claims 23 and 46 which teach “ $(\text{Lu}_{0.97}\text{Ce}_{0.03})$ ”, “ $(\text{Lu}_{0.955}\text{Ce}_{0.045})$ ” and “ (LuCe) ”. It that that in the formula $(\text{Ca}_{1-x-y-z}\text{Sr}_x\text{Ba}_y\text{Ce}_z)_3(\text{Sc}_{1-a-b}\text{Lu}_a\text{D}_c)_2\text{Si}_{n-w}\text{Ge}_w\text{O}_{12+\delta}$, “ Sc_{1-a-b} ” should be “ Sc_{1-a-c} ” since b is not defined and it is known in the art that D substitutes for Sc. Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claims 13, 14, 16, 24, 27-35, 38, 40-45, 47, 53, 54, 56-59, 70 and 72 are not explicitly disclosed in the specification.

Applicants did not address these objections.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6-8, 10, 11, 13, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/08452 or U.S. patent 6,669,866.

U.S. patent 6,669,866 is the English equivalent to WO 01/08452.

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These references teach a phosphor having the formula $(\text{Tb}_{1-x-y}\text{RE}_x\text{Ce}_y)_3(\text{Al}_{1-q}\text{Ga}_q)_5\text{O}_{12}$, where q is 0-1, $0 < y < 0.1$, $0 \leq x \leq 0.5 - y$ and RE can be $(\text{Y}_{1-t}\text{Gd}_t)$, where t is 0-1. This formulas overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The references teach a white light emitting lighting apparatus comprising the taught phosphor and a Ga(In)N light source, which has the formula of claim 3, that emits blue light radiation in the range of 420-490 nm. The references teach phosphor in the lighting apparatus can be blended with other phosphors, such as YAG:Ce, which has the formula $\text{Y}_3\text{Al}_5\text{O}_{12}:\text{Ce}^{3+}$ and which is one of the phosphors of claim 11. The taught lighting apparatus has a CCT value of less than 5000, which overlaps the claimed range. Example 10 shows that the lighting apparatus has the structure of claims 6-8. The references suggest the claimed phosphor and apparatus.

Claims 1-3, 5-9, 13, 14 and 36-38 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,596,195.

Applicant has provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as U.S. patent 6,596,195 at the time this invention was made, or was subject to a joint research agreement at the time this invention was made. However, the reference additionally qualifies as prior art under another subsection of 35 U.S.C. 102, and therefore, is not disqualified as prior art under 35 U.S.C. 103(c).

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Applicant may overcome the applied art either by a showing under 37 CFR 1.132 that the invention disclosed therein was derived from the invention of this application, and is therefore, not the invention "by another," or by antedating the applied art under 37 CFR 1.131.

This reference suggests a phosphor having the formula $(\text{Tb}_{1-y-u-v}\text{Ce}_y\text{Y}_u\text{Gd}_v)_3\text{Al}_2\text{O}_{12}$, where z is about 4 to about 5, preferably about 4.6 to less than about 5, y is about 0.005 to about 0.1 and u and v are each preferably in the range of about 0.005 to about 0.3. This formula falls within and overlaps the claimed formulas. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). This phosphor is used in white light emitting light apparatus having the structure of claims 5-8 and where the light source is a InGaN LED, which has a formula that falls within that of claim 3, and which emits radiation in the range of about 400 to about 480 nm. The taught lighting apparatus has a CCT value of about 3600 and a CRI value of 65. The reference suggests the claimed phosphor and apparatus.

Claims 1-3, 5-11 and 36-38 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 10/368,115 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future patenting of the conflicting application.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the

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inventor of this application and is thus not the invention “by another,” or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131.

Claims 1-3, 5-11 and 36-38 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent application 2004/0159846, which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the published application, it constituted prior art under 35 U.S.C. 102(e).

This rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the published application was derived from the inventor of this application and is thus not the invention “by another,” or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the published application under 37 CFR 1.131.

US 2004/0159846 is the publication number for application 10/368,115. This application has a different assignee, Gelcore, Inc. and General Electric Company, than the present application, whose assignee is General Electric Company.

This reference teaches a phosphor blend of $\text{Sr}_4\text{Al}_{14}\text{O}_{25}:\text{Eu}^{2+}$ and a phosphor having the formula $(\text{Tb}_{1-y-u-v}\text{Ce}_y\text{Y}_u\text{Gd}_v)_3\text{Al}_2\text{O}_{12}$, (para. 33) where z is about 4 to about 5, preferably about 4.6 to less than about 5, y is about 0.005 to about 0.1 and u and v are each preferably in the range of about 0.005 to about 0.3. This formula falls within and overlaps the claimed formulas. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383

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(CCPA 1960). This phosphor blend is used in white light emitting light apparatus having the structure of claims 5-8 and where the light source is a LED, which has the formula of claim 3 and which emits radiation in the range of about 430 nm. The reference suggests the claimed phosphor and apparatus.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/08452; U.S. patent 6,669,866, U.S. patent 6,596,195 or U.S. patent application publication 2004/0159846 as applied to claim 1 above, and further in view of U.S. patent 6,335,548.

Claim 4 is provisionally rejected under 35 U.S.C. 103(a) as being unpatentable over copending application 10/368,115 as applied to claim 1 above, and further in view of U.S. patent 6,335,548.

As stated above, WO 01/08452; U.S. patent 6,669,866, U.S. patent 6,596,195, U.S. patent application publication 2004/0159846 and copending application 10/368,115 all suggests the lighting apparatus of claim 1. They do not teach that the taught LED light source can be replaced by other light sources that emit radiation in the range of 400-530 nm. U.S. patent 6,335,548 teaches that OLEDs, which are organic emissive structures, are functionally equivalent to LEDs used in the lighting apparatus having the structure of WO 01/08452; U.S. patent 6,669,866, U.S. patent 6,596,195, U.S. patent application publication 2004/0159846 and copending application 10/368,115. Therefore, one of ordinary skill in the art would have found it obvious to replace the LEDs taught in the apparatus of WO 01/08452; U.S. patent 6,669,866, U.S. patent 6,596,195, U.S. patent application publication 2004/0159846 and copending application 10/368,115 with a functionally equivalent OLED which emits radiation in the range of 400-530 nm. The references suggest the claimed apparatus.

Claims 1-3, 5-7, 9 and 36-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 and 38-80 of U.S. Patent No. 6,596,195. Although the conflicting claims are not identical, they are not patentably distinct from each other because the formula claimed in the patent overlaps that claimed in this application and the claimed and patented lighting apparatus have the same structure.

Claims 1-3, 5-11 and 36-38 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-17 of copending Application No. 10/368,115. Although the conflicting claims are not identical, they are not patentably distinct from each other because the formula claimed in the copending application overlaps that claimed in this application and the lighting apparatus in both applications have the same structure.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 and 38-80 of U.S. Patent No. 6,596,195 in view of U.S. patent 6,335,548.

Claim 4 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-17 of copending Application No. 10368,115 in view of U.S. patent 6,335,548.

This is a provisional obviousness-type double patenting rejection.

As stated above, the claims of 6,56,195 and copending application 10/368,115 all suggests the lighting apparatus of claim 1. They do not teach that the taught LED light source

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can be replaced by other light sources that emit radiation in the range of 400-530 nm. U.S. patent 6,335,548 teaches that OLEDs, which are organic emissive structures, are functionally equivalent to LEDs used in the lighting apparatus having the structure of U.S. patent 6,596,195 and copending application 10/368,115. Therefore, one of ordinary skill in the art would have found it obvious to replace the LEDs claimed in the apparatus of U.S. patent 6,596,195 and copending application 10/368,115 with a functionally equivalent OLED which emits radiation in the range of 400-530 nm.

Applicants did not address the above rejections in their response.

Claims 15, 24, 39, 48, 49, 63, 64 and 68 would be allowable if rewritten or amended to overcome objections set forth in this Office action.

Claims 16-23, 25-35, 40-47, 50-54, 56-59, 65-67 and 69-73 objected to as being dependent upon an objected base claim, but would be allowable once the objection to the base claims 15, 39, 48, 49 and 64 has been overcome.

There is no teaching or suggestion in the cited art of record of phosphors having the formulas $(RE_{1-x-y}Sc_xCe_y)_2A_{3-p}B_pSi_{z-q}Ge_qO_{12+\delta}$, where RE is selected from a lanthanide ion or Y^{3+} , A is selected from Mg, Ca, Sr or Ba; B is selected from Mn and Zn, $p=0-3$, $q=0-3$, $z=2.5-3.5$, $0 \leq x < 1$, $0 < y \leq 1$ and $-1.5 \leq \delta \leq 1.5$ and $(Ca_{1-x-y-z}Sr_xBa_yCe_z)_3(Sc_{1-a-c}Lu_aD_c)_2Si_{n-w}Ge_wO_{12+\delta}$, where $a=0-1$, $c=0-1$, $w=0-1$, $n=2.5-3.5$, $0 \leq x < 1$, $0 < y \leq 1$, $0 < z \leq 0.3$ and $-1.5 \leq \delta \leq 1.5$.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
December 2, 2005


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Primary Examiner
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